



# The RBF Series

## OWNER'S GUIDE

**Tools Required:**

Phillips Screwdriver  
Straight Screwdriver  
Wire Strippers

**Utility Knife**

4 1/2" Wood Screws  
3 Insulated Wire Connectors  
1 Strain Relief Connector

**Features & Benefits**

- Primary and Secondary Thermal Safeguards
  - Commercial grade high temperature manual reset
  - Over-temperature one-time thermal device
- Nichrome element wrapped around mica insulators for durability
- Powder coat paint process eliminates sharp cutting edges
- Stainless steel grill and frame
- Convenient ON-OFF rocker switch control
- Two year extended warranty
- Wall can designed for bottom wiring and ease of installation
- Factory tested and UL listed
- Retrofits into model RBC wall can

**MODELS:****RBF101**

(Supersedes RB Models; RB101 & RB121)

**IMPORTANT INFORMATION****! WARNING**

Turn the electrical power off at the electrical panel board (circuit breaker or fuse box) and lock or tag the panel board door to prevent someone from turning on power while you are working on the heater. Failure to do so could result in serious electrical shock, burns, or possible death.

1. Read all instructions and information labels. **Verify the electrical supply wires are the same voltage as the heater.**
2. All electrical work and materials must comply with the National Electric Code (NEC), the Occupational Safety and Health Act (OSHA), and all state and local codes.
3. The heater must be grounded to the grounding pigtail (copper wire) provided in the wall can.
4. If you need to install a new circuit or need additional wiring information, consult a qualified electrician.
5. Protect electrical supply from kinks, sharp objects, oil, grease, hot surfaces or chemicals.

**! WARNING**

**DO NOT** install the heater in a floor, ceiling, or behind doors. **Overheating or fire may occur.**

**! WARNING**

**DO NOT** install heater in any area where combustible vapors, gases, liquids, or excessive lint or dust are present. **Fire or explosion may occur.**

**! WARNING**

**Risk of Electrical Shock.** Connect grounding lead to grounding wire provided. Keep all foreign objects out of heater.

**! WARNING**

**Risk of Fire.** Heater must be kept clear of all obstructions: a minimum of 3' in front, 6" above and on both sides. Heaters must be kept clean of lint, dirt and debris. (See Maintenance Instructions)

**SAVE THESE INSTRUCTIONS**

# **READ ALL INSTRUCTIONS AND SAFETY INFORMATION**

**IMPORTANT!**  
**It is extremely  
important you  
verify the  
electrical supply  
wires are the  
same voltage as  
the heater (i.e. 120  
volt heater to 120  
volt power supply  
and 240 volt heater  
to 240 volt power  
supply).** If  
replacing an  
existing heater,  
check the labels  
of the old heater  
and replace using  
the same voltage.  
**Hooking a 240 volt  
heater to a 120 volt  
power supply will  
drastically reduce  
the heater's  
output. Hooking a  
120 volt heater to a  
240 volt power  
supply will  
destroy the heater.**  
**Connecting your  
heater to an  
incompatible  
power supply will  
void the warranty.**

**Warranty is void if  
any material is  
sprayed on the  
element or blower.  
Use paintmask  
provided if walls  
are to be textured  
or painted.**

## **Installation Instructions**

### **Part One**

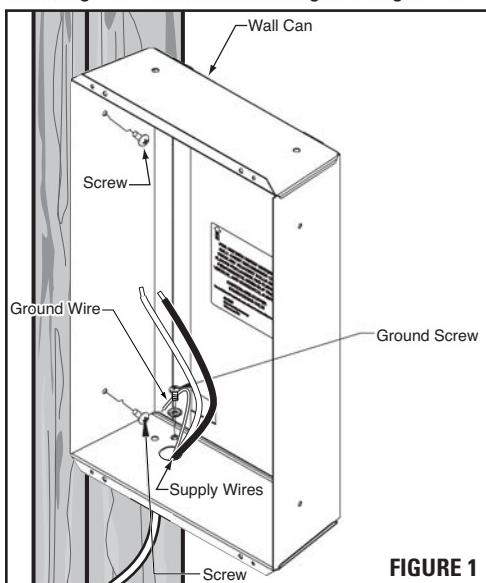
**PLACEMENT:** UL approved for vertical installation only.

**CONTROL OF HEATER:** ON-OFF control built into product.

#### *How do I install for new construction?*

##### **STEP 1 Mount The Wall Can**

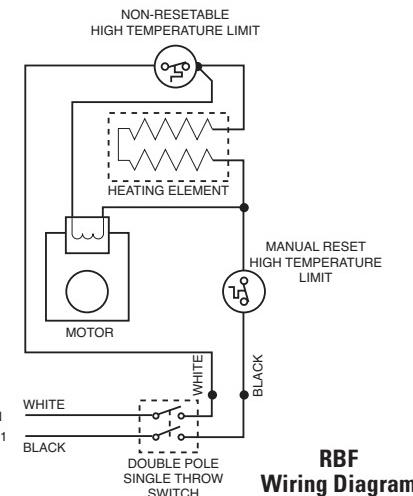
The wall can is designed to fit between two standard 16" on-center studs. UL requires a minimum clearance of 6" adjacent vertical surfaces such as walls, shelving, drapes, etc. Manufacturer recommends 12" from finished floor and adjacent surfaces. (**Note:** Front edge of wall can must be flush with finished wall. If installing on unfinished wall; face of wall can must extend from face of stud to allow for thickness of sheetrock.) Secure the wall can to the studs with two screws or nails, right or left hand mounting (See Figure 1).



**FIGURE 1**

##### **STEP 2 Route Supply Wires**

Route supply wire from circuit breaker through opening in bottom of wall can and secure with strain relief connector, leaving 6" to 10" wire lead for later use. Connect supply ground wire to grounding pigtail in wall can (See Figure 1).

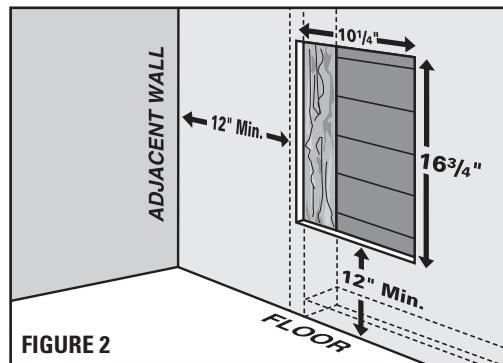


**RBF  
Wiring Diagram**

#### *How do I install in an existing wall?*

##### **STEP 1 Cut Hole In Wall**

Cut a hole 10 1/4" wide by 16 3/4" high next to wall stud. UL requires a minimum clearance of 6" adjacent vertical surfaces, such as walls, shelving, drapes, etc. Manufacturer recommends 12" from finished floor and adjacent surfaces (See Figure 2).



**FIGURE 2**

##### **STEP 2 Route Supply Wires**

Route supply wire from circuit breaker through opening in bottom of wall can and secure with strain relief connector, leaving 6" to 10" wire lead for later use. Connect supply ground wire to grounding pigtail in wall can (See Figure 1).

##### **STEP 3 Mount The Wall Can**

The wall can is designed to fit between two standard 16" on-center studs. Note: Front edge of wall can must be flush with finished wall (See Figure 2). Secure the wall can to the studs with two screws or nails, right or left hand mounting (see Figure 1).

### **Part Two**

##### **STEP 1 Insert Heater Assembly Into Wall Can**

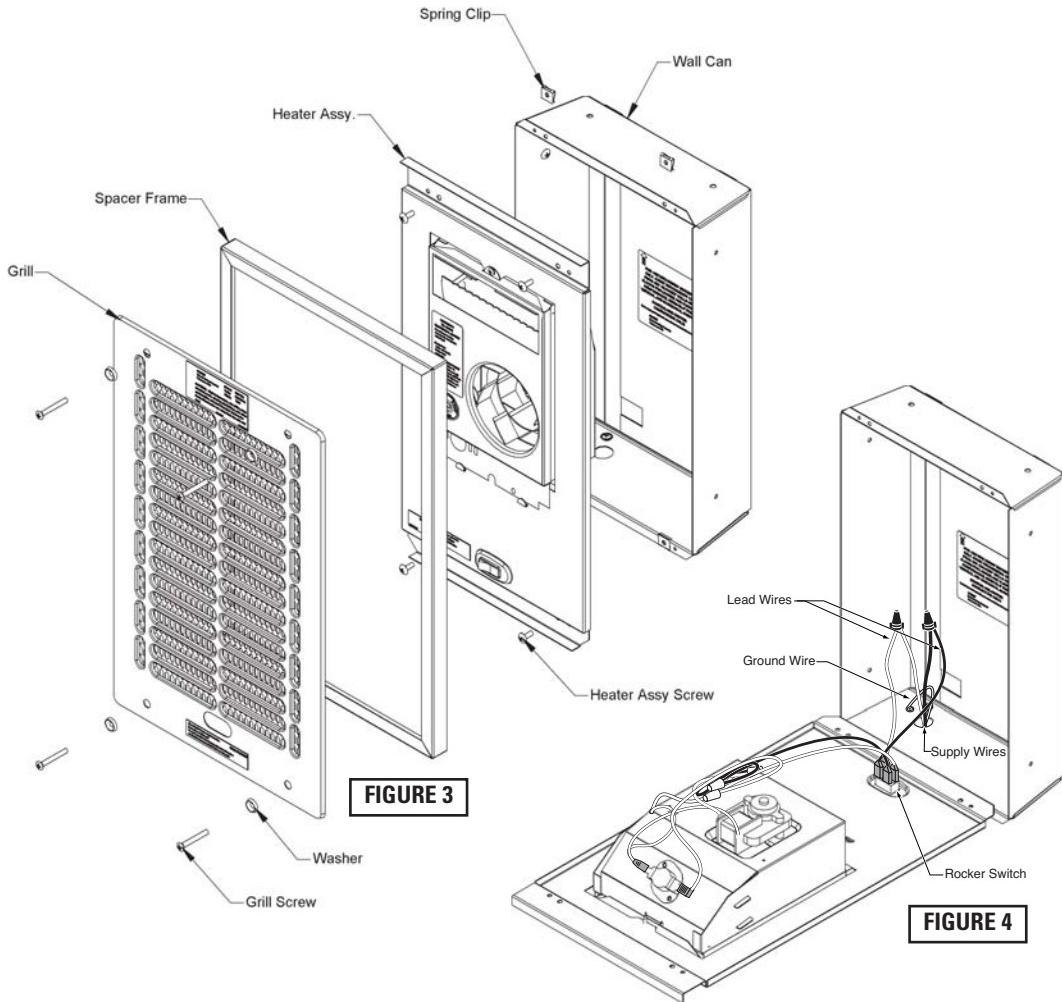
Install heater assembly: Install spring clips on wall can edge, two at the top and two at the bottom (See Figure 3). Lay heater assembly on its front surface, position so rocker switch will be installed at bottom of wall can (See Figure 4). Make the connection of the supply wires to the lead wires from the rocker switch. Position the heater assembly to fit adapter plate to the surface of the wall can (See Figure 3). Be sure all lead wires are inside the wall can before securing heater assembly. (Use the four #10 32 x 1/2" machine screws; two at top and two at bottom).

##### **STEP 2 Install Grill Frame and Grill**

Remove protective film from grill before installing grill. Place grill frame outside top and bottom flanges of the heater assembly. Place grill over frame and secure with the four finishing washers and four #10 x 11/2" Phillips oval head sheet metal screw. (See Figure 3). Start all four screws before tightening (**Note:** Over tightening screws may damage grill).

# Installation Instructions

## Installing RBF As Replacement For RB Heater



### STEP 1 Removing RB heater:

- Turn off power to the heater being replaced. Turn the thermostat to the highest setting and wait approximately 30 seconds (120 seconds for some electronic thermostats). If the heater turns on, you have turned off the wrong circuit breaker at the electrical panel board. If heater does not turn on, proceed to next step.
- Remove knob (if applicable) and screws to remove grill.
- Remove heatbox from wall can, using the front of the heater to pull it free of the wall can. Be careful to not touch the heating element or any of the electrical terminals on the back of the heatbox or fan motor.
- (At this point you can make certain that power is turned off to the heater by using either a voltmeter or circuit tester. Test each terminal of the Secondary Over-Temperature control to ground. No voltage should be present! If no voltage is present, continue with the next step. If voltage is present, the right breaker or fuse for this heater has not been found. Locate correct breaker or fuse before continuing.) Separate the connection of the supply wires and lead wires.

### STEP 2 Install heater assembly:

Install spring clips on wall can edge, two at the top and two at the bottom (See Figure 3). Lay heater assembly on its front surface, position rocker switch to be installed at bottom of wall can (See Figure 4). Make the connection of the supply wires to the lead wires from the rocker switch. Position the heater assembly to fit adapter plate to the surface of the wall can (See Figure 3). Be sure all lead wires are inside the wall can before securing heater assembly (Use the four #1 32 x  $\frac{1}{2}$ " machine screws; two at top and two at bottom).

### STEP 3 Install Grill Frame and Grill:

Remove protective film from grill before installing grill. Place grill frame outside top and bottom flanges of the heater assembly. Place grill over frame and secure with the four finishing washers and four #10 x 11/2" Phillips oval head sheet metal screws (See Figure 3). Start all four screws before tightening (**Note:** Over tightening screws may damage grill).

**⚠ WARNING**  
**Risk of Electrical Shock.** Connect grounding lead to grounding wire provided. Keep all foreign objects out of heater.

**⚠ WARNING**  
**Risk of Fire.** Heater must be kept clear of all obstructions: a minimum of 3' in front; 6" on both sides and above. Heaters must be kept clean of lint, dirt and debris.

**⚠ WARNING**  
**Turn the electrical power off at the electrical panel board (circuit breaker or fuse box) and lock or tag the panel board door to prevent someone from turning on power while you are working on the heater. Failure to do so could result in serious electrical shock, burns, or possible death.**

## Operation & Maintenance

### How to operate your heater

1. Once installation is complete and power has been restored, turn the heater switch on. **Important:** The heater will remain on until it is manually turned off.

### Maintenance

As needed, or every six months, minimum.

1.) **WARNING!** Before removing grill, turn the electrical power off at the electrical panel board (circuit breaker or fuse box). Lock or tag the panel board door to prevent someone from accidentally turning the power on while you are working on the heater. Failure to do so could result in serious electrical shock, burns, or possible death.

- 2.) Turn the heater switch to on. If the heater turns on, you have turned off the wrong circuit breaker at the electrical panel board.
- 3.) If heater does not turn on, proceed with next step.
- 4.) Remove screws and take off grill.
- 5.) Wash grill with hot soapy water and dry immediately.
- 6.) While holding fan (to avoid damage or bending), use a hair dryer or vacuum on blow cycle to blow debris through the top element (Do not touch element).
- 7.) Vacuum fan area without touching the elements.
- 8.) Replace grill and secure with screws.
- 9.) Turn power back on at the electrical panel board.

### About the Heater Temperature-Limiting Controls

The heater is protected by two temperature-limiting controls. The first is a high temperature reset switch, designed to open the heater circuit when excessive operating temperature is detected. The problem must be assessed and the limit must be reset to resume operation.

Further protection is provided by a secondary over-temperature switch, which will open the heater circuit in severe over-temperature conditions, or in the event of component failure. If this occurs, the heater must be repaired or replaced.

### Resetting the Manual-Reset Limit Control

If the manual-reset limit control has opened the heater circuit due to excessive operating temperatures, the heater will not work until the limit reset button is pressed. After allowing the unit to cool for at least 10 minutes and resolving the problem causing the limit to trip; use a narrow object such as a ball-point pen to access the reset button through the center section of the heater grill. Press FIRMLY and be sure to listen and feel for a click, indicating it has been reset.

Note that resetting the manual limit control may not restore heater operation if a severe over-temperature condition has occurred. See the Troubleshooting Chart below for more information.

## Troubleshooting Chart

CONSULT LOCAL ELECTRICAL CODES TO DETERMINE WHAT WORK MUST BE PERFORMED BY QUALIFIED ELECTRICAL SERVICE PERSONNEL.

Symptom	Problem	Solution
Breaker trips immediately upon energizing heater.	1. Incorrect supply voltage. 2. Overloaded circuit.  3. A short circuit exists in the supply or heater wiring.  4. Defective circuit breaker.	1. Verify that supply voltage matches the heater rating. 2. The total amperage of all heaters on a branch circuit must not be more than 80% of the amperage rating of the circuit breaker and supply wire ratings. Reduce the number of heaters on the circuit. 3. Shorted supply or heater wires may be accompanied by severe sparking. Inspect all supply and heater wiring insulation for damage. Do not reset the circuit breaker until all electrical shorts have been repaired. 4. Replace the circuit breaker.
Heater fan operates, but does not discharge warm air.	1. Insufficient element temperature. 2. Incorrect supply voltage. 3. Element has failed.	1. Allow a few moments for element to reach operating temperature. 2. Verify that supply voltage matches the heater rating. 3. Replace element.
Heater discharges smoke or emits a burnt odor.	1. Dust, lint or other matter has accumulated inside heater.	1. Clean heater (see "Operation & Maintenance" section for instructions).
Element heats for a moment without the fan turning, then immediately stops heating.	1. Defective motor or internal connection. 2. Fan or motor jammed.	1. Heater or fan motor requires replacement.  2. Remove obstruction and press heater reset button (after allowing the unit to cool). Test heater operation--if reset button has been pressed (be sure to listen and feel for a click indicating it has been reset), but heater does not run, heater requires replacement.
Heater does not run.	1. Heater has tripped the high-temperature reset switch. 2. Heater has tripped the secondary over-temperature switch. 3. Power not on at the circuit breaker. 4. Broken or poorly connected wire(s) to heater.	1. Press the heater reset button (see "Operation & Maintenance" section for instructions). 2. A severe over-temperature condition has occurred. Repair or replace heater. 3. Turn on the correct circuit breaker in the main panel.  4. Turn off power at circuit breaker. Check supply wire continuity and proper connection to heater wires.

## Warranty

**LIMITED ONE-YEAR WARRANTY:** Cadet Manufacturing Co. will repair or replace any Cadet product, including thermostats, found to be defective or malfunctioning from first date of purchase through the first year.

### Extended Product Warranty

**LIMITED TWO-YEAR WARRANTY:** Cadet Manufacturing Co. will repair or replace any RBF series element or motor found to be defective or malfunctioning from first date of purchase through the second year.

### These warranties do not apply:

1. To conditions resulting from improper installation or incorrect supply voltage;
2. To conditions resulting from improper maintenance, misuse, abuse, accident, or alteration;
3. To service calls, or any warranty labor not performed at the Cadet Manufacturing facility;
4. If the date of manufacture cannot be determined;
5. To freight damaged products.

CADET SHALL NOT BE LIABLE FOR DAMAGES SUCH AS PROPERTY DAMAGE AND/OR INCIDENTAL EXPENSES RESULTING FROM BREACH OF THESE WRITTEN WARRANTIES OR ANY IMPLIED WARRANTY.

These warranties give you specific legal rights, and you may also have other rights which vary from state to state. Cadet neither assumes, nor authorizes anyone to assume for it, any other obligation or liability in connection with these electric heaters or any part of such heaters.

If the product should become defective during the warranty period, contact Cadet Manufacturing Co. at 360-693-2505 for instructions on how to have the repair or replacement processed. Products returned without authorization will be refused.

### Parts and Service

Contact Cadet for information on Parts or Service.